South Asia Transboundary Water Quality Monitoring (SATWQM) Project

Location: South Asia
Type: Water quality monitoring
Size: 6 partner organizations; 40 supporting organizations
Funding: Total: US$350,000 (annually)
Private (in-kind): US$50,000
Public: US$300,000
Objective: To sample, monitor, and create a shared database on transboundary river water quality.
Duration: 1999–present
Scale: Rural and urban

Summary

The purpose of the SATWQM project is to assess river water quality and identify potential problems that can lead to serious adverse health effects. By focusing on the less sensitive subject of water quality (as compared to quantity) and using non-governmental partners, the SATWQM project is progressing despite continuing, strained relations between India and Pakistan. The SATWQM network is poised to expand its membership, increase the number of sampling sites and parameters, and begin the transition from a United States (US)-hosted initiative to one managed by a regional organization.

In-Country Principles That Attracted Non-Donor Financing

- Capacity building and informed decision making
- Public participation in, and support of, sustainable development
- Institution building and access to justice and enforcement of laws

Principles that have helped attract private-sector support for SATWQM include integrated, intersectoral, and multiobjective decision making about water resources at the watershed or basin scale; informed and science-based decision making; broad stakeholder participation and empowerment in water resources decision making; and strong, objective and culturally appropriate institutional, policy, and legal frameworks.

Other principles that have attracted private-sector interest include effective coordination among sectors and across multiple geographic and institutional scales; consideration of water as an economic, social, and environmental commodity, including acknowledgement of the full costs of water management and water services; an emphasis on decision making and assignment of authority at the lowest appropriate level; the commitment to create and strengthen human and organizational capacity for sustainable water management; systems of accountability and transparency; and a progressive policy and legal environment.

Financing

Total approximate annual funding for this ongoing project is US$350,000. The estimated dollar value of in-kind services provided by regional partners is US$50,000. On average, the United States Department of Energy (USDOE) provides US$200,000, and the US Department of State contributes US$100,000 annually.

The Project

The project has created a network of South Asian organizations that monitors water quality in transboundary tributaries of the Ganges and Indus River basins and shares the data over the Internet.

Issues of concern to SATWQM include impacts of untreated sewage, industrial effluents, and agricultural runoff; river siltation and channel shifting; salinity increases in fresh waters; and the environmental degradation of critical habitats.

The principal idea underlying the project is that cooperation to ensure a sustainable environment can improve relations among countries. The network includes research institutions, universities, and nongovernmental organizations that collect water quality data in the border regions of Pakistan-India (on the Ravi River), Nepal-India (on the Bagmati and Narayani Rivers), and Bangladesh-India (on the Ganges River).

Comprehensive water quality monitoring across national boundaries enhances assessment of water resources across an entire watershed and helps identify potential problems.

Environmental cooperation among countries also has several indirect security-related benefits. It increases dialogue between policy makers and scientists that can be maintained even when talks on other more sensitive subjects are suspended. It also creates an information-sharing infrastructure that can be expanded to include sensitive security and arms control subjects.

Technical Data

Technologies include the Hydrolab minisonde with electronic sensors to measure water quality, Jal-Tara field-testing kits for chemical analyses of water samples, global positioning system units, Secchi disks to measure turbidity, and digital cameras.

Temperature, pH, conductivity, salinity, and dissolved oxygen are monitored using the Hydrolab minisonde, and 14 other physiochemical water quality parameters are monitored using the Jal-Tara semiquantitative field-testing kits.

Performance Data

The network of participating organizations has doubled in 2 years and now totals 40. The sophistication of the sampling equipment has improved, and the number of parameters monitored and the amount of data shared has increased significantly. Approximately 40 people have been trained in water quality monitoring to date.

Participants and Roles

The six transboundary data collection partner organizations (in alphabetical order) are Bangladesh Unnayan Parishad, Dhaka, Bangladesh; Center for Environment and Development, Kolkata, India; Department of Biology, Guru Nanak Dev University, Amritsar, India; Environment and Public Health Organization, Kathmandu, Nepal; Environmental Biology Laboratory, Patna University, Patna, India; and the World Wide Fund for Nature, Lahore, Pakistan. Data collection partners provide in-kind services needed to collect the SATWQM project data and share data using the project Web site. Other supporting partners share relevant archival data from other water quality monitoring projects on transboundary rivers using the SATWQM project Web site, disseminate project data and information, and provide insight and guidance to ensure project success and sustainability.

The Cooperative Monitoring Center at USDOE Sandia National Laboratories acts as the catalyst for the SATWQM project through the sponsorship and guidance of the US Department of State's Regional Environmental Affairs Office, Kathmandu, and the USDOE. It also supplies equipment to SATWQM partners and creates mechanisms to access and use the data via the project Web site.

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